THE VETERINARY RECORD

A Weekly Journal for the Profession.

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S.

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SCHEDULED DISEASE.

Two-thirds of 1916 are now over; and on the whole we have made better headway against scheduled disease in the second four months of the year than we did in the first four. Speaking roughly, most diseases show figures totalling about the same number of outbreaks above or below those of last year as they showed at the end of April. This really means that, in the case of most, the position compares rather better with last year's than it did four months ago.

Anthrax continues to show a lower return than last year, though its decline is not now so marked as it was in the Spring. Sheep-scab, parasitic mange, and swine fever, on the other hand, all continue to show increases; and the great probability is that the last-named disease will exceed 4000 outbreaks by the end of the year. Glanders has behaved rather curiously this year. In the earlier months it considerably exceeded last year's totals; but a great improvement set in later, and the present figures are much the same as those of last year.

We have only had one outbreak of Foot-and-mouth disease so far this year; and that occurred early in February. Contrasting this with what might have happened, we cannot feel too grateful. Foot-and-mouth disease is the most serious danger in the form of animal disease that we have to fear just now; and the general public little realise the amount of harm a severe visitation of it might do. The small number of outbreaks we have had during the war, and the celerity with which they have been subdued, reflect great credit upon the Board of Agriculture.

We may justifiably be satisfied with our returns of scheduled disease so far. Probably it was inevitable that war conditions should cause some diseases to increase; but the increase is not general, and in no case has it become alarming. That having been our experience for the first two years, we may hope that it will continue to the end of the war. There are some other warring countries whose conditions are far worse than ours already, and likely to be worse yet.

Late Notice.

As President of the S.E.V.A., I wish to give notice that owing to the sudden and lamented death of our esteemed colleague and Secretary, Mr. Theodore Toope, of Dover, whose demise was notified in your last issue, the Meeting of the Association, advertised to take place on Thursday next, 14th inst., at Margate,

will be cancelled.

E. LYNE DIXSON.

[We regret that this notice, with obituary notices of the late Mr. Toope, reached us only on Thursday evening—too late for insertion in this issue.—Ed.]

PYELO-NEPHRITIS AND CYSTITIS DUE TO A FOREIGN BODY OF GASTRIC ORIGIN IN A COW.

The microbial diseases of the urinary passages (cystitis and pyelo-nephritis), which are fairly common in cows, are, in the majority of cases, sequelæ or complications of genital infections after parturition. Their pathogeny is fairly well known at the present day. The infectious germs, primarily localised in the vagina, gain the meatus urinarius, penetrate into the bladder, ascend the ureter, and settle in the renal pelvis. This mode of infection is called an *ascending infection*.

Sometimes, however, it must be admitted that the infection is not a genital one primarily, but is hæmatogenous in origin, and progresses by the descending route. The microbes reach the kidney and the renal pelvis by the renal artery, settle there, and may either become localised (pyelo-nephritis) or spread towards the dependent organs (ureter and bladder) creating the complication of cystitis.

But primary infection of the kidney, renal pelvis, and bladder may be realised by the penetration of a foreign body of digestive origin, which has emerged from the rumen under the influence of unrecognised causes or influences. Donville has described the following case, which belongs to this third group (*Revue Gén. de Méd. Vét.*)

A cow, whose general condition was satisfactory, showed frequent, painful, and spasmodic micturition, which yielded not more than a tumbler-full of urine at a time. The urine was yellow and turbid, and yielded a scanty dirty-grey deposit, containing pus globules, vesicle cells, and various species of microbes. The meatus urinarius was red and turgescent. The bladder was double the thickness of the fist, and was resistant and hard. The diagnosis arrived at was that of vesical tumour and cystitis.

It is not stated whether any treatment was attempted; but the results of the post-mortem are given. This showed that the rumen was united to the left kidney, and connected with it by a fibrous canal 1½ inches long, the diameter of a two-franc piece, and filled with creamy pus. The left kidney had doubled its volume. Its parenchyma showed five purulent centres the size of walnuts, two of which were discharging pus into the renal pelvis. The right kidney, which was normal in volume, showed lesions of a commencing pyelo-nephritis. The bladder was hypertrophied; its walls were triple the normal thickness; and there was an abscess, open towards its interior, in its anterior portion. Its mucous membrane was rugged and ulcerated, but without signs of cancerous nodules. The foreign body which had caused these lesions could not be found.—(*Revista de Higiene y Sanidad Veterinaria*).

Exceptional development of Hepatic Echinococcosis in a Cow.

Vogt has recorded the following unusual slaughter-house observation (*Zeitschr. für Fleisch-und Milch-hygiene*). The subject was a fat cow, which Vogt examined during life prior to slaughter. He was then struck by the extraordinary volume of the abdomen. After slaughter, this enlargement was found to be due to an echinococcosis in the substance of the liver. The liver was enormously enlarged, being about 40 inches long, 28 inches broad, and 14 inches thick. The hepatic tissue had almost completely disappeared.

The other organs presented nothing abnormal, except that the lungs contained some parasitic nodules of the size of a nut.—(*La Clinica Veterinaria*).

The subcutaneous injection of Oxygen.

The researches of Ramond, Sacquepée, Bayeux, and others have proved that the subcutaneous injection of oxygen is a medicinal treatment of great value. The indications for its use are manifold, because such injections have the result of re-inforcing hæmatosis, and that great function is altered in the most varied circumstances. The absorption of the oxygen is real and complete by the hypodermic channel, while it is very limited and problematic when the gas is given by inhalation.

The observations of the authors above cited show the value of hypodermic injections of oxygen in anoxæmia, the principal clinical forms of which are anæmia, dyspnea, and renal insufficiency. This symptomatic ensemble constitutes an important part of pathology; and there is no doubt that the indications for hypodermic oxygenation will become more numerous.

The subcutaneous injection of oxygen is quite innocuous, provided that care is taken that the needle through which the gas passes does not open into the lumen of a vein. This accident causes gaseous embolism, which is manifested by difficulty of breathing, thread-like pulse, etc., and is always an unpleasant complication.—(*La Clinica Veterinaria.*

The variations undergone by the Live Weight in the First Period after Birth in Young Cattle, Sheep, Goats, and Pigs.

It has been known for a long time that human infants diminish in weight in the first days after their birth. Very few observations have hitherto been made upon the changes in the live weight in newly-born domestic mammals. Richter and Brauer carried out, at the Zootechnic Institute of the Dresden Veterinary School, a systematic research upon the subject, and published the results in 1914. Their observations were made upon 25 calves, 12 lambs, 10 kids, and 36 sucking-pigs; and the methods of observation for the different animals was as follows.

The calves, lambs, and kids, after their birth, were given to their mothers to be licked. After they had been rubbed down—that is to say, from half an hour to an hour and a half after birth—they were weighed for the first time. The next weighing followed, on an average, seven and a half hours after the first. From the first day after birth forward, the animals were regularly weighed between 7 and 8 a.m., and between 6 and 7 p.m., before they suckled.

The pigs were weighed for the first time half an hour after the birth of the last of the litter. The second weighing, on an average, 7 hours and 6 minutes after the first. Afterwards the pigs were, in general, weighed three times daily—that is, about 7 a.m., about 12 noon, and about 6 p.m.

Except some calves, which were fed by the sucking-bottle, all the animals of the experiment were fed by their mothers. The ruminants were given to their mothers only for the purpose of being suckled. The pigs, on the other hand, remained with their mothers after the first three days.

The experiments lasted for six days, and had the following results.

The majority of the calves (80%) underwent a loss of weight in the first hours and in the first days after birth. The minority (20%) maintained their initial weight or, exceptionally, commenced to gain in weight from the commencement of extra-uterine life. Taking count only of the calves which diminished in weight, the diminution amounted, on an average, to 4% of the initial live weight. If, however, the calves which did not diminish in weight were included in the averages, the average diminution in weight became 2% of the live weight for each healthy calf. The duration of the diminution of weight was 21 hours on an average. The new augmentation of weight, in calves which had undergone a diminution, began, on an average, at the age of 38 hours—that is, of about a day and a half. If, however, all the calves were included in the averages, the increase of weight was found to begin at a day and one-third. The initial weight was regained, in general, within six days; the average period of regaining it was 2½ days if only those calves which had lost weight were taken into account, and about 2 days and 9 hours if all the calves were included. The male calves, on an average, underwent a lesser loss of weight than that shown by the females, and regained their initial weight in a shorter period.

The majority of the newly-born sheep and goats (60%) lost weight in the first hours and in the first days after birth. The minority either maintained their initial weight or began to gain weight immediately after birth. The diminution of weight amounted, on an average, to 4.1% of the live weight per head. The duration of the diminution of weight was 11 hours on an average. The new augmentation of weight commenced, on a average, 23 hours after birth if only those animals which had lost weight were taken into account, and 13 hours after birth if all the animals were reckoned in. The initial weight was regained within four days; on an average it was regained one day and 17 hours after birth, or, in round figures and if all the animals were counted in, one day after birth. The female lambs and kids, on an average, lost less

weight than the males, and regained their initial weight more quickly.

The majority of the newly-born pigs showed increase of weight from birth forwards. The minority showed a diminution of weight after birth; which, on an average. amounted to 3.6% of the live weight, and lasted seven hours. The initial weight was regained, on an average, fifteen hours after birth.—(*La Clinica Veterinaria*).

GIANT FORMS OF THE TUBERCLE BACILLUS.

After the investigations of Ferràn, Much, Spengler, Malassez, etc., the polymorphism of the tubercle bacillus is an admitted fact; but the question of the abnormal forms of this microbe is not worked out. Albert and Alexandre Mary have published a contribution to the subject (*Revista Higiene y de Tuberculosis*). In 1913 they encountered, in some fresh tuberculous expectorates, a profusion of large bacteriform acid-resisting bodies, which were frequently grouped in dichotomous ramifications. These *macro-bacilli* were only distinguished from the classic tubercle bacillus by their greater dimensions (two or three microns in diameter). Similarly, the micrographic study of sputa enabled them to demonstrate the existence, at certain points of some preparations, of voluminous spherical neucleated bodies which were slightly acid-resisting; and the same preparations offered all the possible transitions between the bacillus of Koch and its giant forms.—(*Revista de Veterinar Militar*).

W. R. C.

EARLY OPERATION FOR CASTRATION.

On Monday last I operated on a colt that was only four months old. The testicles were well developed and quite down in the scrotum, and I had no difficulty over the operation.

I think this is early, and is worth recording.

W. E. BLACKWELL, M.R.C.V.S.

Towcester, Sept. 4, 1916.

VETERINARY EDUCATION IN THE UNIVERSITY OF MELBOURNE.

Headquarters, 3rd Australian Division,
Larkhill, 5th Sept., 1916.

Sir,

Some weeks ago you were good enough to publish an application made by me on behalf of the University of Melbourne Veterinary School for recognition by the Royal College of Veterinary Surgeons.

In a letter thanking you for this publication and commenting on some points in your editorial of August 5th, I expressed the hope that an opportunity might be afforded me of setting before your readers some details of the syllabus and of the methods of teaching and examining in vogue in M.U.V.S.

A statement with reference to the first two years is appended hereto, and with your permission I hope to deal with the third and fourth years in a further article.

In order to bring the matter and method of the Melbourne teaching to the test which will be best understood, comparison has been made throughout with the regulations of the Royal College of Veterinary Surgeons for veterinary students in the United Kingdom.

I am, Sir, yours, etc.,
HAROLD A. WOODRUFF.

VETERINARY EDUCATION IN THE UNIVERSITY OF MELBOURNE.

An account of veterinary education in any school affiliated to the Royal College of Veterinary Surgeons would be incomplete if it failed to include mention of the preliminary general education test. Of the Melbourne University Veterinary School it may be said that all candidates proceeding to the veterinary degree must matriculate *before commencing their course.* The examination qualifying for matriculation in the case of veterinary students is precisely the same as that for medical students, and the subjects are those *which were required of veterinary students in the United Kingdom prior to the reduction in standard* which was effected by the Council of the R.C.V.S. a short time ago, viz., Latin, English, Algebra, Arithmetic and Geometry, and one of the following optional subjects: Greek, French or German.

The First Year at the University is a pure science year, when the veterinary student attends the same classes as students proceeding to degrees in science or medicine. This intimate association with a large number of students, men and women, all members of the University but belonging to different faculties, is of inestimable value in turning out the future veterinary surgeon as a citizen, as well as a member of a learned profession.

The subjects of the year are:—Natural Philosophy (or Physics), Zoology, Botany and Chemistry.

The Course in Natural Philosophy includes lectures illustrated by experiments *and laboratory work* on the fundamental principles of the following subjects:—Mechanics and Hydrostatics, Properties of Matter, Heat, Light, Electricity and Magnetism, Sound. Veterinary students attend the full course of lectures and laboratory work as prescribed for the first year of the science course, but are examined only on the work of the first and second terms.

The examination is both written and practical.

The written examination set in 1915 is given as an index of the standard required.

NATURAL PHILOSOPHY.—PART I.

VETERINARY STUDENTS ONLY.
PASS AND FIRST HONOUR.

The Board of Examiners.

Not more than EIGHT questions are to be attempted.

1. What is weight, and how has it been established that the weight of a body is proportional to its mass at a given place?

A balance has two pans which are not at the same level, but one is 10 cm. higher than the other. A kilogramme is place on each pan. What will be the difference of their weights? (Radius of earth $= 6{\cdot}36 \times 10^8$ cm.)

2. What is a vector quantity? Give examples. What are the rules of vector addition and subtraction?

A body of mass m rests on a plane, which is inclined at an angle of 15° to the horizontal. Find the force which acts normal to the surface of the plane.

3. Explain the mode of action and describe the apparatus shown in the lectures (Boys' torsion balance) to demonstrate gravitational attraction.

4. Describe carefully the standards, as distinguished from the units themselves, of length, mass, and time on the centimetre, gramme, second system of units. What are the units of force, moment of inertia, and couple on that system?

5. What are the advantages of the mercury-in-glass thermometer? What errors must all such thermometers possess? What errors may arise in their construction?

Describe briefly any practical method of determining high temperatures.

6. If the price of gas is 4s. 2d. per 1000 cubic feet, and one kilowatt-hour costs 3d., compare the cost of one calorie of heat produced by the combustion of the gas and electrically.

[Given 1 cub. ft. = ·0283 cub. metres, heat of combustion of a cub. metre of gas is 6×10^6 calories, and 1 calorie is equivalent to 4·2 watt sec.]

7. Describe the construction of an induction coil, and state the function of each part. What factors determine the E.M.F. produced in the secondary winding? How is the sudden interruption of the primary current ensured?

8. Describe and give the theory of Cavendish's (*or* Colomb's) proof of the inverse square law of force between electric charges.

9. Find the resistance of n conductors arranged (a) in parallel, (b) in series.

A galvanometer of resistance 300 ohms is shunted by a coil of resistance 20 ohms. What resistance must be placed in series with this branched circuit in order that the total resistance of the combination may be 300 ohms?

In the R.C.V.S. requirements for students in the United Kingdom, Elementary Physics is joined on to Chemistry, and no practical work is required either in the teaching or in the examination.

The course in Zoology is exactly the same as taught to medical students. It is unnecessary to give the syllabus of lectures, but it is interesting to give *the laboratory work required*: "Examination by means of dissections and preparations of the following types:—Amœba, Paramœcium, Hydra, Paracheraps, Hyla, Lepus. Dissection of the mammalian eye. The examination of specimens and sections illustrating the organogeny of the fowl and frog." Students must be provided with a microscope with low and high powers, and a box of approved dissecting instruments.

The standard of examination in Zoology can be appraised with more or less accuracy by the following examination papers set in March, 1915.

ZOOLOGY.

Medicine and Veterinary Science. Written Paper.

The Board of Examiners.

All answers must be illustrated by rough sketches.

1. Write an account of the structure and life-history of not more than two Cestode worms.

2. Describe the structure of (a) amœba, (b) the yeast plant, and (c) protococcus, and compare their functions.

3. What do you understand by a segmented animal; illustrate your answer by reference to the structure of (a) an earthworm, (b) a leech, and (c) a crayfish.

4. Describe the development of the germinal layers in a bird.

5. Describe the structure of the fore limb in a frog and compare it with that of a man and a bird.

ZOOLOGY.

Medicine and Veterinary Science.

Practical.

The Board of Examiners.

1. Dissect the frog provided so as to show the structure of the portal systems.

2. Describe the structure of the frog's skull and spinal column.

3. Identify and describe the specimens A and B.

4. Identify, describe, and refer to its proper zoological position, the specimen labelled C.

The Course in Chemistry and the examination therein is the same for students in the faculties of Science, Medicine and Veterinary Science. The laboratory work includes "simple qualitative analysis, exercises to illustrate the principles discussed in the lectures, and simple exercises in volumetric analysis, including acidimetry and alkalimetry, oxidizing and reducing actions, etc., which compares more than favourably with the R.C.V.S. requirements of "a course of practical instruction extending to not less than 30 hours."

The M.U.V.S. laboratory work occupies 120 hours

The R.C.V.S. examination does not include any practical work but is entirely written and *viva voce*.

The Course in Botany extends over two years with two examinations. In the first year it is the same as Botany Part I. of the Science Course, and concerns itself with structural botany.

In the second year systematic botany is taken, in a course consisting of "lectures and demonstrations, including field excursions, extending over a period of not less than 100 hours." The second year course includes, *inter alia*, the examination of the commoner weeds, pasture, medicinal, poison and food plants. Both courses include laboratory and microscopic work, counting about half the total number of hours allotted to the subject.

The examination test in the practical work at the end of the first year may be estimated from the following paper set in 1915.

BOTANY.—PART I.

Practical (Pass). Veterinary Students only.

The Board of Examiners.

[Leave all preparations labelled for examination, and lettered drawings descriptive of them.]

1. Construct the floral diagram, and draw a longitudinal section of the flower provided.

2. Make a preparation of the epidermis from the leaf provided to show stomata. Estimate the number per square centimetre. Mount in glycerine.

3. Make, stain, and mount in balsam a transverse section of the stem provided.

4. Make preparations of specimens *A* and *B*. Identify the disease affecting each, and give reasons.

5. Identify the preparations *C*, *D*, *E*, *F*, *G*, briefly describing each.

The R.C.V.S. regulations provide for one combined examination in Biology—Elementary Zoology and Botany, (written 2 hours, oral 15 minutes).

No practical work is required in either subject.

As a minor subject in the first year there is Osteology and Arthrology, the course of which lasts only one term. No examination follows in the first year but "students will not be allowed to proceed with dissection in the second year unless they have a satisfactory knowledge of the bones and joints." The examination in anatomy at the end of the second year includes and covers all the ground gone over in this course.

Having passed in these subjects at the end of the first year the student proceeds to the second year in the ordinary course. Should he fail in *one or two* subjects he will be referred, and may take a supplementary examination in three months time, Any failure at this supplementary examination or failure in *more than two subjects* in the original annual examination entails the doing of the whole year over again. This procedure is followed as a result of failure in any of the subsequent years.

SECOND YEAR.

In the second year the subjects are, Physiology, Anatomy of the Domesticated Animals, Histology, and Systematic Botany. The last has been already dealt with. Details of the other threes ubjects areas follows:

PHYSIOLOGY.

"The entire course of instruction will extend over not less than 130 hours. The earlier lectures are restricted to the fundamental principles of bio-chemistry, so that the practical classes on the same subject may be better understood. Subsequent lectures deal with the physiology, general and comparative, of the blood, circulation, respiration, digestion, animal nutrition, metabolism, hormone and nerve, the peripheral nervous system, including the receptor mechanisms of general and special senses, the central nervous system, muscle and locomotion, animal heat, renal and other excretions, reproduction, lactation, and the ductless glands.

The lectures are illustrated with experiments and demonstrations, and emphasis is laid on subjects of special importance.

Practical classes in Biochemistry are held once a week throughout the year. In these classes each student has the opportunity of studying experimentally the chemistry of the constituents of the animal body, of animal excreta, and the fundamental ingredients of fodders.

A course of practical classes, ten in number, deals with the biophysics of muscle, nerve, circulation and central nervous system.

The standard of the systematic course is given by the lectures. Students are expected to read Smith's Veterinary Physiology. In the practical course the typed slips issued at each class give all the information and directions required. Students desirous of further knowledge in bio-chemistry are recommended to read Plimmer's Practical Organic and Bio-Chemistry."

The R.C.V.S. requires "A course of not less than 80 lectures." There is no provision for laboratory work, and no practical work is required in the examinaton. How candidates can be "expected to be familiar with the characteristic chemical relations of albumen and sugar, and with the elementary chemical examination of milk, bile and urine." (R.C.V.S. Register, Schedule II.) *without practical laboratory work* it is difficult to imagine.

ANATOMY OF DOMESTICATED ANIMALS.

"This course consists of lectures and demonstrations extending over not less than 100 hours. It includes:—

The anatomy of the horse, a systematic description of the muscular, circulatory, lymphatic and nervous systems; the respiratory, digestive, urinary, generative, and special sense organs; the foot.

The anatomy of the ox, camel, pig, sheep, dog, cat and fowl is dealt with by comparative methods.

Each student must attend at the dissecting room and engage in the dissection of the horse and other domesticated animals, for a total period of not less than 300 hours."

HISTOLOGY.

"The course consists of twenty lectures delivered one a week during first and second terms, and of laboratory classes of 1½ hours duration, twice a week during first, and once a week during second and third terms.

The lectures are fully illustrated, and deal generally with the cell, cell division, the principles of staining, cutting, and mounting sections, the histology of the simple tissues and the details of the histological organology of one or two of the systems dealt with in the laboratory, the systems selected varying from year to year.

In the laboratory students mount a series of about 95 specimens, which are for the most part already stained, practice being, however, also given in the manipulation and mounting of fresh tissues.

The specimens dealt with include the following:—

Blood, bone marrow; epithelium and endothelium, the tensile connective tissues, cartilage, bone and its development, muscle, nervous tissues, heart and heart valves, blood vessels, lymphoid organs, ductless glands, skin and its appendages, larynx, trachea, and bronchus, lung, tongue and buccal glands, pancreas, the digestive tube, liver, urinary system, genital system in the male and female, the organs of special sense, spinal cord, cerebral cortex and cerebellum.

Modifications in the minute anatomy of the alimentary system in ruminating animals, and the minute structure of the horn secreting tissues in the horse's foot will be demonstrated and studied microscopically.

Text-book:—Lewis and Stöhr—A Text-book of Histology (2nd ed.)."

The total course thus amounts to 20 hours lectures and 70 hours practical work. The R.C.V.S. requires "a course extending to not less than 40 hours practical instruction regarding the histology of domesticated animals." The examination, practical and written, in histology in Melbourne is separate and distinct from Physiology. That of the R.C.V.S. is included with Physiology—the two subjects together being allotted 2 hours written and 20 minutes oral examination.

Materia Medica and Pharmacy. One other subject taught in the second year, Materia Medica and Pharmacy, requires some explanation. It is very desirable that students should get practice in dispensing during the third year whilst assisting in the clinic. In order to fit them for this work materia medica and pharmacy lectures and demonstrations have to be attended by second year students. The student has the option of passing the examination in this subject in either the second or third years, and this for the reason, that the logical extensions of the subject, viz., Therapeutics and Pharmacology, are subjects of the third year.

Lastly, a word must be added with regard to—

STABLE MANAGEMENT AND MANIPULATION OF ANIMALS.

"This is a practical course consisting of demonstration and practising classes, held weekly, during the first and second years. It deals with the general care of animals, grooming, cleaning; feeding and watering; bandaging and clothing; saddlery; harness; means of restraint, etc.

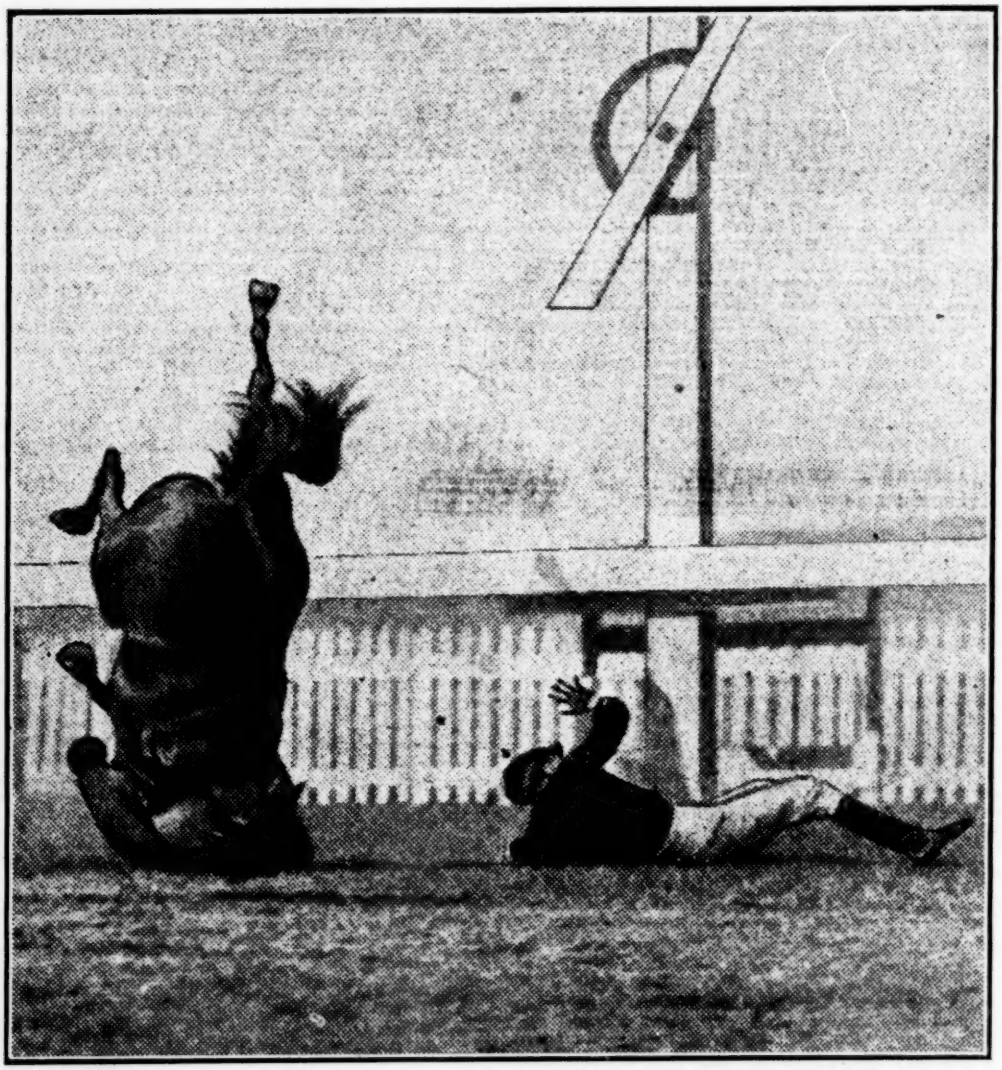
Students must obtain a certificate of proficiency in this subject before being allowed to proceed to the work of the third year."

(*To be continued.*)

German Advertisement.

Much has been heard of the commercial enterprise of Germany, and her newspapers are now boasting that she will quickly recover the trade lost owing to the war. Perhaps it is not sufficiently realized that German success in this, as in other fields, is largely due to sheer impudence. A curious example is given in the *Chronique Médicale*. It is there stated that a number of French doctors have received from a Stuttgart firm of manufacturers of artificial limbs a catalogue of its wares with an offer of a large discount on the usual prices.

Surely such an offer could only have come from Germany.—*B. M. J.*



We are indebted to Mr. Fras. Evelyn Place, M.R.C.V.S., B.Sc., of the Agricultural Department, Adelaide, South Australia, for a copy of *The Evening Journal*, containing the interesting and probably unique snapshot of Tandora, turning a sumersault when falling in the hurdle race at the Broken Hill races on Saturday, 15th July.

THE USE OF PICRIC ACID IN SURGERY. By T. F. BROWN, D.S.O., M.R.C.S. ENG., L.R.C.P. LOND., Major, Australian Army Medical Corps.

Early in 1914 I became acquainted with the fact that picric acid was four times more potent than carbolic acid in bactericidal properties, and from investigation found that a 1 per cent. solution kills streptococci and staphylococci in two minutes.

During the Gallipoli campaign, as Officer commanding No. 1 Australian Auxiliary Hospital in Egypt, an opportunity presented itself to test practically the value of picric acid in the treatment of over 3000 wounded patients. The medical officers and nursing staff carried out the following routine treatment as far as practicable. 1. To superficial wounds 1 per cent. picric acid solution was applied on thin gauze. The wound was thus left practically exposed to the air; usually one dressing per day was sufficient. 2. Suppurating sinuses were treated by syringing with 0.5 to 1 per cent. of the solution twice daily, an H_2O_2 solution used every two or three days to remove débris. 3. Arm and leg baths with 0.5 per cent. solution for 30 minutes were used for suppurating fractures and crushed tissues, with an occasional bath of hypertonic saline as a change.

The results were uniformly good: healthy and vigorous granulations and quick recovery took place. Several cases of septic compound fracture and injuries to bone cleared up in a remarkably short time. Deep septic wounds caused by shrapnel, etc., granulated and were ready for skin-grafting likewise.

We found 1 per cent. solution too strong for the delicate epithelium of new skin, and weaker solutions, 0.5 per cent. and 0.2 per cent., were used when the granulation reached the level of the surrounding epidermis. A 0.2 per cent. solution in water and spiritus vini rect. was used in several cases of erysipelas with excellent results.

The following opinions of the properties and value of picric acid solution are based on the cases treated: (1) It kills bacteria without corroding effect and prevents suppuration; (2) it stimulates granulation of the tissue; (3) it has marked anodyne properties, and the need of asperin or morphia is rare; (4) by dispensing with hot fomentations it saves much time, cotton-wool lint, G.P. tissue, etc.; (5) it is less irritative and more efficacious than iodine; (6) it may be used for sterilisation of the skin in surgical cases; (7) it shortens the convalescent period.

The contra-indications usually mentioned are the the following: (1) Coagulation of the tissue. This is so slight with the solution used that it was unnoticeable, and we had no evidence of retardation in the healing of wounds from this cause. (2) Poisonous effects. In the 3000 cases treated not one showed any signs of poisoning. Moreover, I have painted a patient suffering from scarlet fever all over with a 2 per cent. solution without any signs of absorption or poisoning, and believe that it hastened the peeling stage. (3) Discoloration of the skin. This is very persistent, but the muscles and subcutaneous tissues apparently do not stain.

So far the opportunity has not presented itself to investigate the result of applying picric acid as a prophylactic in tetanus.—*The Lancet.*

The use of Petrol for Cleansing Wounds.

Petrol has been used for the first cleansing of wounds for over twenty years in the hospitals of Toronto, Canada, in their emergency wards in which accident cases are dressed; such cases include street, railroad, and machinery accidents, and have contused lacerated wounds with much dirt ground into them. Petrol has given excellent results in the cleaning of these wounds, probably through its fat-solvent action in removing tissue débris and particles of fatty tissue to which dirt clings, as well as dirt itself.

As wounds received at the front are contused, lacerated wounds, and come in a very dirty condition, the method used in this field ambulance for the first cleansing of such wounds is as follows:

The skin, and then the surface of the wound, is cleaned by vigorous rubbing with a swab of absorbent cotton soaked in petrol. Swabs of cotton are wound round an artery forceps or probe and soaked in petrol, and with them the wound is cleaned from the surface inwards as far as the forceps can be pushed. The forceps is rotated and pushed in all directions, a number of swabs being used, and the process is continued until a couple of swabs come out perfectly clean.

If there is much dried blood or gross dirt on the surface of the skin or wound, it is best removed with warm water and soap, and a brush if necessary, before the petrol is used.

The petrol does not cause any special smarting, and patients did not complain of it when questioned. If petrol is left wet on the skin and jaconet or adhesive plaster strips close together are applied over the dressing, preventing evaporation, blistering of the skin will occur, but otherwise this does not occur.

Of the results of this method of treatment it is more difficult to speak. Cases dressed in a field ambulance are practically all evacuated within twenty-four hours, only very slight cases being kept for treatment, and it is practically impossible to follow up cases and compare the results of the petrol treatment with other methods. Those cases which we have dressed again on the following day seemed to do very well. As a rule the track of the wound seemed quite clear from suppuration; there was scarcely any inflammatory areola, and any discharge present did not appear to be infective pus.—M. H. EMBREE, Lieut. R.A.M.C., in *The Brit: Med: Jour:*

SUBSCRIPTIONS TO R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons begs to acknowledge the receipt of the following subscriptions for 1916 to the College funds:—

Prof. J. F. Craig, Dublin	£1	1	0
J. Crawford, Capt. A.R.D., India	1	1	0
George Currey, Lieut. A.V.C.	1	1	0
A. E. Darwell, Leigh, Lancs.	1	1	0
William Laing, Elgin	1	1	0
James Martin, Wellington, Salop	1	1	0
Archd. Renfrew, Broadway, Worc.	1	1	0
Frank Ware, I.C.V.D., Madras	1	1	0
A. J. Williams, Lt.-Col. A.V.C.	1	1	0
J H. Wynne, Denbigh	1	1	0
Previously acknowledged	751	11	6
	£762	1	6

ARMY VETERINARY SERVICE

Extracts from *London Gazette*,

WAR OFFICE, WHITEHALL, Sept. 1.

His Majesty the King has been graciously pleased to award the Military Medal for bravery in the field to the undermentioned:—

Cpl. A. E. HILL, 17, A.V.C.

REGULAR FORCES. ARMY VETERINARY CORPS.

Sept. 2.

Temp. Lieut. to be temp. Capt.:—W. McQuiston (Aug. 20).

Sept. 4.

To be temp. Lieuts:—Howard Brinsmead, William H. Wood (Aug. 4).

Sept. 6.

The name of temp. Capt. H. S. Howard-Jones is as now described, and not as in the *Gazette* of July 28.

SPECIAL RESERVE OF OFFICERS.

Sept. 4.

To be Lieut. (on prob.):—Francis H. Doyle (Aug. 15).

CANADIAN ENGINEERS.

Sept. 6.

To be temp. Lieut.:—Sergt. F. C. P. Roberts, 49736, from Canadian A.V.C.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

Sept. 6.

Capt. (temp. Maj.) F. J. Taylor to be Major (Sept. 7).
Capt. L. W. Wynn-Lloyd relinquishes his commn. on account of ill-heath (Sept. 7).

The following casualties are reported :—

WOUNDED—Cpl. R. Weston, 17/331, N.Z. A.V.C.
DIED—Capt. R. W. Clarke.

A.V.C. COMFORTS FUND.

A further list of contributions is to hand, but has been unavoidably held over to next issue.

OBITUARY.

EDWIN HILLS HAZELTON, F.R.C.V.S., Col. A.V.S., P.V.O.
Simla, India. Graduated, Lond : March, 1883.

Colonel (temporary Brigadier-General) EDWIN HILLS HAZELTON, F.R.C.V.S., A.V.S., Principal Veterinary Officer in India, died at his post at Simla on 25th July, 1916, after a brief illness.

At the beginning of May of this year, about six weeks after his return from a tour of inspection in Mesopotamia, he strained his leg, and had been laid up more or less since with a thrombus in the saphena vein, from which emboli were constantly filtering into the general circulation.

He remained on full duty till 2nd June, 1916, when he reluctantly consented to take to his bed. Between 2nd June and 25th July official letters were taken to him, and his orders on important questions were obtained by his assistant administrative officer. On the afternoon of 25th July the latter officer discussed official papers with Colonel Hazelton as usual, and left him at 7 p.m. At 10 p.m. the same evening Colonel Hazelton had a sudden seizure, and died in a few minutes.

Full military honours were accorded to the deceased officer at the funeral, which took place at Simla at six o'clock the following evening, 26th July. Practically the whole of military Simla, including the Commander-in-Chief in India, attended the funeral, at which the Viceroy also was present. A salute of eleven guns was fired, and there was the full escort appropriate to his temporary rank of Brigadier-General.

Colonel Hazelton leaves a widow and six children, the latter all under twelve years of age.

The deceased officer had served his country long and faithfully. Born on December 16th, 1861, he was gazetted Veterinary Surgeon in the Army in 1883, promoted Veterinary Surgeon 1st Class in Sept., 1893, Major in 1900, Lieutenant-Colonel in 1902, and Colonel in 1907. He saw service in China in 1900, being present at the relief of Pekin and obtained a mention in despatches in *London Gazette* dated 14th May, 1901.

He was a popular and esteemed officer, and his loss will be keenly felt by all who were associated with him in his long and successful military career. He was a keen all-round sportsman, and was equally efficient as a horseman and cricketer, in which capacities he became known to many outside his immediate official sphere.

JAMES A. LEGGETT, Registered "Existing Practitioner," 53 Regent's Park Road, London, N.W., died on August 28th, aged 78.

Waste woodlands for Pig-rearing.

Mr. S. F. Edge, in an article on "Waste Woodlands for the Breeding of Pigs," in the *Journal of the Board of Agriculture*, gives the net results of keeping pigs in this way as follows :

1. Breeding pigs are more prolific and much hardier than sty-bred pigs.

2. The simplicity and cheapness of the system, given the necessary waste woodland or poor pasture, make it commercially better than permanent housing.

3. The cost of housing, fencing, and apparatus is as follows :—Wooden house, 8 ft. by 8 ft., bolted together in sections to facilitate moving, £6 ; eight old railway sleepers to stand house on and make floor, 12s. ; fencing wire including posts, 6d. per yard ; home-made wooden troughs, 2s. 6d. each ; one 40-gallon barrel for soaking food, 5s. ; one barrel will provide for up to 40 pigs daily.

4. Against the pig accounts 5s. per acre is charged for waste woodland. No charge is made for pasture, as the pigs run on this only from November to March, when it is not in use for anything else except poultry, and the pig manure is considered a fair equivalent against rent. Straw, fern, or other bedding must be used from September to May.

5. The pedigree pigs are sold at a price representing not less than £1 1s. per month of their life, viz., a six-months pig realises £6 6s., and so on. On an average most pigs are sold by the time they reach six months. Many are sold at much higher prices than those given, boars in particular, but against this must be set the fact that it seems much harder to breed really good boars than it does gilts, and, therefore, a much larger percentage of boar pigs go to the butcher than do gilts. The aim is to cull most drastically, and keep only the really first-class pigs. The result of this is that at present 80 per cent, are fit to keep for breeding.

6. Another interesting and valuable feature is that pigs not good enough for pedigree sale, when put into sties to fatten for the butcher, put on weight for a given amount at least 20 per cent. more cheaply and more quickly than mongrel pigs. This was tested by feeding together mongrel and pedigree pigs, the result being that the pedigree pigs were ready for sale two or three weeks in advance of the mongrels when being fed to make bacon pigs.

Winter Rearing of Pigs.

Some of the troubles attending those young pigs which are farrowed in the autumn, as well as the means to overcome these difficulties, formed the subject of a paper recently read by Professor John Evvarde, Assistant Chief in Animal Industry at the Iowa Experiment Station at Ames, Iowa, before the Wisconsin Live Stock Breeders, at Madison, Wisconsin, in February of this year.

Mr. Evvarde remarks : "If the worm infection and the lice infestation are prevented from the very days of farrowing until the winter quarters are entered about the middle of the month of November, then there is little or no danger of further trouble. This means to avoid all those grounds and pastures and conditions that harbour 'profit destroyers,' and it means to diligently and persistently avoid them. Good feeding, free-choice self-feeder style, is part of the prevention. When the cold weather sets in, and the land freezes and the snow falls, the worm eggs are not likely to be picked up, and, peculiarly enough, the worm-free, lice-free fall pig is a surprising doer. Rightly managed, fall pigs are much less subject to worms than the spring ones. Keep the

fall pigs well fed. Feed the suckling sows well, being liberal with the skim milk, meat meal tankage, middlings, peas and corn, or good pasture, such as alfalfa, rape, and nice tender, green, succulent fall blue grass. Fix a "creep" for the pigs, so that before they know how to eat apart from their dam there is to be found an abundance of corn, meat-meal tankage and wheat middlings in separate self-feeders awaiting their call. Push them along with a little milk now and then. It may be well to soak a little shelled corn to get them started. The fall pig that does splendidly is the fall pig that makes good later on when the profits are being figured. It is a losing game usually to attempt to grow the fall pig along slowly. Push them hard; give them every opportunity to develop into marketable 225-lb. to 250-lb. hogs by April, when the market is usually good. To wait for grass with the expectation of making cheap gains on cheap food is more of a delusion than a possible reality."

Commenting on the foregoing, in *The Live Stock Journal*, Mr. Sanders Spencer says:—The mention of the free-choice self-feeder style has reference to experiments carried out by Mr. Evvarde in permitting the pigs to select for themselves those of the various foods placed within their reach in self-feeders which they preferred at the time. In this country we do not appear to have an equal amount of trouble amongst pigs with worms and lice as experienced in some parts of the United States; still, the loss of flesh, and consequently of food, is so much greater than is generally believed that it would well repay pig-keepers to take the necessary steps to rid or reduce the trouble. Cleanliness in and disinfection of the styes are strongly recommended, whilst the occasional application of some form of oil or grease to such parts of the pig as behind the ears, under the arms or thighs, round the tail and on the top of shoulders, or, in fact, those parts of the pig which cannot be rubbed against a post or wall by the pig.

"Fifty fall pigs of September, 1904, farrow were fed by the Animal Husbandry Section, Iowa Experiment Station, according to the free choice system of self-feeding from January 8th to April 15th, 1915, in five groups. All individual foods were allowed separately in different compartments of a self-feeder. The foods as given in each group were:—

FOODS.

Group I.—Shelled corn and meat meal tankage, plus limestone, plus charcoal, plus rock salt.

Group II.—Same as Group I., plus whole oats.

Group III.—Same as Group I., plus whole oats and oil meal.

Group IV.—Same as Group I., plus whole oats, oil meal, and wheat middlings.

Group V.—Same as Group I., plus whole oats, oil meal, wheat middlings, and wheat bran.

RESULTS.*

	Group.—(All figures in pounds.) I.	II.	III.	IV.	V.
Final lot, April 14th	240	235	239	240	231
Average daily gain	1·59	1·53	1·58	1·60	1·50
Average daily feed	6·14	6·04	6·24	6·50	6·15
Feed for 100 lbs. gain—					
Shelled corn	360	364	361	340	346
Meat meal	25	23	21	19	19
Whole oats	—	5	6	4	3
Oil meal	—	—	6	6	7
Wheat middlings	—	—	—	38	33
Wheat, bran, limestone, charcoal and salt were eaten in such small amounts that less than 1 lb. was consumed for over 100 lbs. of gain.					
Total	385	392	394	407	408
Cost of 100 lb. gain	$5.14	5.24	5.23	5.44	5.49
Return for a bushel of corn	$1.14	1.13	1.13	1.12	1.11

* Prices of foods—Corn 70 c.; oats 50 c.; meat meal tankage, $2.50 per cwt.; oil meal $1.50 middlings $1.45; bran $1.20; charcoal $3.00; limestone 60 c.; and salt $1.00.

Mr. Evvarde briefly sums up the results:—

1. September fall pigs, weighed in the month of usually good markets or April of the following year, better than 225 lb., or a handy market weight.

2. There was but little difference in the general effectiveness of the rations, but the simplest appeared the best, viz., corn, meat meal tankage, limestone, charcoal, and rock salt, all allowed in separate self-feeders, free choice system.

3. As per previous experience, the addition of oats did not pay, and the pigs sensibly enough ate but little of them.

4. Practically 5 lb. to 7 lb. of meat meal tankage with every 100 lb. of corn.

5. With 70 dollars per bushel corn, other feeds in proportion, gains on these fall pigs cost from 5.14 dollars to 5.49 dollars per 100, a most creditable showing.

N.B.—These figures do not include the period of cheaper gains, taking pigs from weaning time at about 30 lb. to 85 lb. average where this experiment began.

6. A return of over 1.10 dollars for a bushel of corn, after crediting other foods at normal prices when hogs sell at 8.00 dollars per 100 lb. live, looks well for the fall pig and the free choice system of self-feeding swine.

Pig farming in Arkansas.

When the mountaineers of the Arkansas Ozark country get musical at certain seasons of the year, the old hymn, "Bringing in the Sheaves," is discarded for a song entitled "Bringing in the Pigs." Bringing in the pigs, known the world over as Arkansas razorbacks, is as much an event in the hill countries of the Ozarks as the chase is in England, or the round-up on the American plains. There are no pig-pens in the mountains: the razorbacks all run loose, and ownership is designated by slits in the ears, or other marks. The razorbacks have been developed from the standard porker into a sort of semi-wild hog which can root for itself in the way of food: they receive little attention from their owners until required to feed the family.

When "pig harvest" arrives the mountaineers take to the woods with a herd of hounds and common curs. The hunting dogs are divided into two classes, and no cow pony was ever more clever in helping man to bunch his live stock. One class of dogs is known as "teazers." These are well trained, and it is their business to get in front of a lone pig, or a bunch of them, for that matter, and teaze the frightened, ferocious swine until they take after the dogs in combat. Maybe a mile or so away a huge log pen, or corral, has been built into which to drive the wild pigs. Towards this the dogs slowly work their way, enticing the infuriated beasts after them. Right into the pen the dogs go, and when the hogs are well inside, the gates are closed. The dogs do not, of course, remain in the pen. If they did the pigs would make short work of them: before the pigs can get them, they bound over the coral walls to safety outside. The teazer dogs work with the others in beginning the round-up, and just as soon as a few hogs are collected together, the trained hounds get their attention by snapping and snarling at them until a sort of running fight is on. Then the retreat towards the corral begins.

When the hogs have young with them the work of the teazers is easier. Sows will fight with the boars to protect their offspring, and, as a consequence, scores of little pigs are frequently led into the traps along with the mature one. Of course, there is no way of telling to whom the babies, unmarked and unbranded, belong. But ownership is established through knowing the ownership of the sows. For instance, if one mountaineer has two sows out and another but one, the one having two gets twice the number of little pigs. This is one of the primitive laws of the hills, and, like all the others, is scrupulously followed.—*Farm Journal.*

Proposed New Cattle Market and Abattoir at Newcastle.

The inadequacy of the slaughter-house system in the city has been engaging the serious attention of the Sanitary Committee for some time, and at a special meeting a few days ago, when Councillor Stableforth presided, Mr. T. Parker, F.R.C.V.S., the Corporation Veterinary Officer, outlined the scheme, the principle of which received the entire approval of the committee.

At present the cattle, sheep, and pig markets, cover an area of 30,682 square yards. The cattle market alone has an area of about 19,178 square yards, while the shape, size, and location could scarcely be improved upon for the purpose of modern abattoirs, and is the site suggested for the purpose. Oblong in shape, it adapts itself admirably to the requirements and affords ample room for extension.

The principal buildings (for the large animals) would be placed on the north side towards the west extremity, abutting Scotswood Road and running parallel with it. Towards the east end of the side, on the north and south aspects respectively, there would be ample spaces for the sheep and pig slaughtering halls, with the necessary lairages for the animals and hanging spaces for the carcases. Between these groups of buildings and opening on to Railway Street would be the main entrance to the institution. To the right of the entrance would be erected the administration block: such as offices, laboratory, and caretaker's house.

The site is large enough to accommodate the buildings for cattle, sheep, and swine, and it affords space for extension by one-third. On the south side, abutting Railway Street, many of the slaughter-houses at present there might, with a new system of drainage, be converted for purposes connected with the institution, such as triperies, etc.

One feature of the scheme is the exclusion of the institution from the city thoroughfares. There would be no direct entrance from Scotswood Road. The main entrance would be from Railway Street, facing the old infirmary. Another advantage, from the sanitary point of view, is that it almost adjoins the railway sidings, so that refuse could be conveniently disposed of by tipping into wagons, and animals arriving by rail would only have to walk some 50 yards into the market and the abattoirs, avoiding the streets entirely.

Should it be considered desirable to provide a large municipal cold-storage in close proximity to the abattoirs and wholesale meat traders' premises, with a view of stimulating the development of the Tyne as a meat distributing centre, a site might be obtainable on the remaining part of the old infirmary area adjoining.

It is calculated that the revenue in Newcastle from the slaughtering equipment, based upon the number of animals killed in a year, would amount to £4073 per annum, while the markets would realise something like £1650 per year. Another probable source of income would be in tolls for carcases of animals killed outside the city. It is claimed that such an institution as proposed would, in a reasonable period, not only pay the interest and redemption, but would become a source of revenue for the city exchequer.—*North Mail.*

DISEASES OF ANIMALS ACTS 1894 TO 1914, SUMMARY OF RETURNS.

Period.	Anthrax		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange. ‡		Sheep Scab.	Swine Fever.	
	Outbreaks (a)	Animals.	Outbreaks (a)	Animals.	Outbreaks (b)	Animals.	Outbreaks (b)	Animals.	(b)	Outbreaks (a)	Slaughtered. *
GT. BRITAIN. Week ended Sept. 2	6	6					22	54	1	67	40
Corresponding week in 1915 ...	6	6					16	23		62	277
Corresponding week in 1914 ...	7	10	6	11	2	4	1	1	2	61	329
Corresponding week in 1913 ...	6	6			2	3	28	40	3	44	454
Total for 36 weeks, 1916	379	449	1	24	36	89	1734	3885	185	3363	8661
Corresponding period in 1915 ...	424	484			37	66	‡597	‡1286	160	3054	13606
Corresponding period in 1914 ...	525	574	20	102	75	223	1522	2634	155	2882	29268
Corresponding period in 1913 ...	387	426			117	294	1940	3895	132	1760	23566

‡ The Parasitic Mange Order of 1911 was suspended from 6th August, 1914, to 27th March, 1915, inclusive.

(a) Confirmed. (b) Reported by Local Authorities.
Board of Agriculture and Fisheries, Sept. 5, 1916

† Counties affected, animals attacked :—
Excluding outbreaks in army horses.

IRELAND. Week ended **Aug. 26**	...	...	...	...	...	...	Outbreaks 1	5	5	52
Corresponding Week in 1915 ...	...	...	...	...	...	...	1	8	2	17
Corresponding Week in 1914 ...	...	...	...	...	...	...	3	5	5	52
Corresponding Week in 1913 ...	...	...	...	...	...	...	2	8	2	15
Total for 35 weeks, 1916 ...	3	7	...	...	...	...	48	276	224	1384
Corresponding period in 1915 ...	1	1	...	...	1	3	53	290	175	1000
Corresponding period in 1914 ...	1	1	76	957	...	...	62	390	158	919
Corresponding period in 1913 ...	...	...	...	...	...	...	98	374	112	675

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Aug. 28, 1916.
NOTE.—The figures for the Current Year are approximate only.

* As diseased or Exposed to Infection